

10/826,558

Application No. ~~10/752,868~~

Amendment

Reply to Office Action of March 29, 2006

PATENT

Amendments to the Drawings

Please amend the drawings by adding reference numeral 60 for the controller on FIG. 1. A replacement drawing sheet (1 of 1) is attached. An annotated sheet showing the change is also attached. No new matter has been added.

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REMARKS

Claims 1-11 and 13-19 are pending. Claims 13-19 are withdrawn. Claim 12 has been canceled.

The Office Action required confirmation of the provisional election of Group I, claims 1-12. Applicant hereby confirms election of Group I for prosecution in the present application.

The Office Action objected to the drawings under 37 C.F.R. §1.84(p)(5) for failing to include controller reference numeral 60 mentioned in the description. Applicant submits herewith a corrected drawing sheet obviating the objection.

The Office Action objected to the specification as failing to provide proper antecedent basis for the subject matter of claim 12. The objection has been obviated because claim 12 has been canceled.

The Office Action rejected claims 1 and 6 under 35 U.S.C. §112 for having insufficient antecedent basis for several limitations. Applicant has amended claims 1 and 6 to obviate the rejection. No new matter has been added.

The Office Action rejected claims 1, 2, 6, and 7 under 35 U.S.C. §102(e) as being anticipated by Ballantine et al. U.S. Patent 6,740,437 ("Ballantine"). The rejection is respectfully traversed.

Applicant's independent claim 1 is directed to a method for operating a fuel cell that generates an anode gas including combustible components. The anode gas from the fuel cell is received at an elevated temperature. Oxygen is added to the anode gas to form an oxidizable anode gas mixture. The oxygen added to the anode gas is heated when a temperature of the mixture drops to below a temperature at which the combustible components can be catalytically oxidized. The mixture is thereby given a temperature at which the combustible components catalytically oxidize. The mixture is catalytically oxidized to form an effluent, which is

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thereafter heated during at least portions of the time when the fuel cell generates electricity. The fuel cell is heated with the effluent.

Applicant submits that independent claim 1 is patentable over Ballantine at least because the reference fails to show or in any way suggest "adding oxygen to the anode gas to form an oxidizable anode gas mixture" and "heating the oxygen when a temperature of the mixture drops to below a temperature at which the combustible components can be catalytically oxidized to thereby give the mixture a temperature at which the combustible components catalytically oxidize," as required by claim 1.

In particular, Ballantine states that the spent reformat is exhausted from fuel cell 312 via conduit 316 and is fed to oxidizer 318 to remove any carbon monoxide, hydrogen, or residual hydrocarbons in the exhaust (col. 10, lines 1-12). Oxygen for the oxidizer is received via conduit 320 and, in some embodiments, the oxidizer can further receive a supplemental oxygen supply to ensure adequate oxygen to oxidize combustibles in the fuel exhaust 316. However, Ballantine fails to show or in any way suggest heating the oxygen being added to the anode gas entering the oxidizer when the temperature of the anode gas/oxygen mixture drops below a temperature for catalytically oxidizing the combustible components.

Independent claim 1 is patentable over Ballantine for at least this reason.

Applicant further submits that independent claim 1 is patentable over Ballantine at least because the reference fails to show or in any way suggest "catalytically oxidizing the mixture to form an effluent" and "thereafter heating the effluent during at least portions of the time when the fuel cell generates electricity," as required by claim 1.

At most, Ballantine refers to recovering heat from the exhaust leaving the oxidizer (col. 10, lines 26-36). However, Ballantine fails to show or in any way suggest reheating the effluent exiting from the oxidizer during at least portions of the time when the fuel cell generates electricity.

Therefore, applicant submits that independent claim 1 is patentable. Accordingly, claims 2, 6, and 7 are patentable at least because they depend from patentable claim 1.

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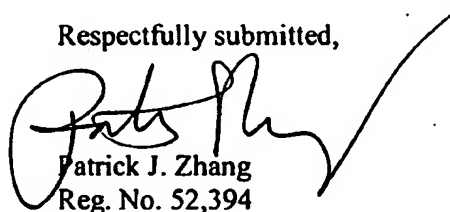
Claims 3-5 and 9-11, which are rejected under 35 U.S.C. §103(a) as being unpatentable over Ballantine in view of Haltiner, Jr. et al. U.S. Patent 6,967,064 ("Haltiner, Jr."), claim 8, which is rejected under 35 U.S.C. §103(a) as being unpatentable over Ballantine in view of Japanese Publication No. 07-326379, and claim 12, which is rejected under 35 U.S.C. §103(a) as being unpatentable over Ballantine in view of Haltiner, Jr. and Japanese Publication No. 2002-15115, are also patentable at least because they depend from patentable claim 1.

CONCLUSION

In view of the foregoing, applicant submits that this application is in condition for allowance, and a formal notification to that effect at an early date is requested.

If the Examiner believes a telephone conference would expedite prosecution of this application, please telephone the undersigned at (415) 273-8305 (direct dial).

Respectfully submitted,



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